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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/645,896	08/25/2000	Jeffrey J. Gold	PD-200223	6089

7590 11/18/2004

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EXAMINER	
STEVENS, THOMAS H	

ART UNIT	PAPER NUMBER
2123	

DATE MAILED: 11/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/645,896	GOLD, JEFFREY J.	
	Examiner	Art Unit	
	Thomas H. Stevens	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 October 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *15 October 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application

3.☐ Copies of the certified copies of the priority documents have been received application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not receiv

(7) 1b8

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Su Paper No(s)
5) ☐ Notice of In
6) ☐ Other: __

DETAILED ACTION

1. Claims 1-15 were examined

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Regarding claims 1,3, 5,7,12, the word "unique" renders the claims indefinite because the claims includes elements not actually disclosed, thereby rendering the scope of the claims unascertainable. See MPEP § 2173.05(d).

Claim Rejections - 35 USC § 103

4. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 1,2,6, 7-10 are rejected under 35 U.S.C.103 (a) as being unpatentable by Durst et al. ("TCP Extensions for Space Communications" (1997)) in view of Priore ("A General Purpose Data Processing System Simulator for Satellite Ground Stations (1997)) and in view of Gold et al. (U.S. Patent 5,808,921 (1998)). Durst et al. teaches the testing sets of protocols for use in space data communication, known as Space Communications Protocol Standards (SCPS); but Durst et al. does not teach simulation of other space orbital properties. Priore teaches a method to model a general class of automatic data processing functions for satellite ground stations, while Gold et al. teaches a system for testing an embedded control processor (i.e., emulated spacecraft control processor and simulation engine) for a spacecraft control processor (abstract).

At the time the invention, it would have been obvious to one of ordinary skill in the art to use Priore and Gold et al. to modify Durst et al. because of the significant financial expense of using actual equipment to model daily intergalactic activities.

Claim 1. A method of simulating the operation of a spacecraft comprising the steps of (Gold: abstract): requesting a connection to one of a plurality of simulated ground stations (Gold: column 4, lines 45-50); generating a range server name corresponding to one of the plurality of simulated ground stations (Priore: abstract); in response to the range server name, generating server location parameters (Priore: pg. 270-271,

Problem Solution section, lines 1-8 and 1-7, respectively); instantiating a range server(Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively) dedicated to a single ground station (Priore: pg. 273, section DPSSGS MODEL OVERVIEW, with pg. 272, figure 1); calculating simulated range data for each of the plurality of simulated ground stations in response to a unique port address (Durst: pg. 389, Introduction, 2nd paragraph, with pg. 392, figure 1).

Claim 2. A method as recited in claim 1(Gold: column 4, lines 45-50; Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 389, Introduction, 2nd paragraph with pg. 392, figure 1) wherein the step of requesting comprises the step of requesting a connection to a simulated ground station from a spacecraft status for each simulated ground station.

Claim 3. A method as recited in claim 1 (Gold: column 4, lines 45-50; Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 389, Introduction, 2nd paragraph with pg. 392, figure 1) wherein the step of requesting comprises requesting a connection to multiple ground stations, wherein each ground station has the unique port address and common IP address (Durst: pg. 397, right column, 2nd paragraph, lines 3-8).

Claim 4. A method as recited in claim 1 (Gold: column 4, lines 45-50; Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 389,

Introduction, 2nd paragraph with pg. 392, figure 1) wherein the step of requesting comprises requesting a connection to multiple ground stations, wherein each ground station has the unique port address and common IP address (Durst: pg. 397, right column, 2nd paragraph, lines 3-8).

Claim 5. A method as recited in claim 4 (Gold: column 4, lines 45-50; Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 389, Introduction, 2nd paragraph with pg. 392, figure 1, pg. 397, right column, 2nd paragraph, lines 3-8) wherein the step of generating a range server comprises generating the range server name in response to the unique port address and using that name to instantiate a range server specific to a unique ground station (Durst: pg. 397, right column, 2nd paragraph, lines 3-8).

Claim 6. A method as recited in claim 1 (Gold: column 4, lines 45-50; Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 389, Introduction, 2nd paragraph with pg. 392, figure 1, pg. 397, right column, 2nd paragraph, lines 3-8) further comprising the step of providing tracking information for the one of the plurality of simulated ground stations (Priore: pg. 269, section The Problem; with Durst, pg. 392, figure 1).

Claim 7. A method of simulating the operation of a spacecraft comprising the steps of (Gold: abstract): generating range, attitude and elevation data for a plurality of

simulation ground stations (Priore: pg. 269,section The Problem, bullets 1-4) identifying a desired simulated ground station from the plurality of ground stations in response to a unique port address (Priore: pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 397, right column, 2nd paragraph, lines 3-8) and, providing simulated range data for the desired simulated ground station to a real time client (Gold: column 2, lines 60-64) in response to a unique port addresses (Durst: pg. 397, right column, 2nd paragraph, lines 3-8).

Claim 8. A method as recited in claim 7 (Gold: abstract; Priore: pg. 269,section The Problem, bullets 1-4, pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 397, right column, 2nd paragraph, lines 3-8) wherein the step of identifying comprises the step of generating a simulated range server name and generating a tracking server name.

Claim 9. A method as recited in claim 7 (Gold: abstract; Priore: pg. 269,section The Problem, bullets 1-4, pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 397, right column, 2nd paragraph, lines 3-8) wherein the step of identifying further comprises in response to the step of generating a range server name and tracking server name, generating server location parameters.

Claim 10. A method as recited in claim 7 (Gold: abstract; Priore: pg. 269,section The Problem, bullets 1-4, pg. 270-271, Problem Solution section, lines 1-8 and 1-7,

respectively; Durst: pg. 397, right column, 2nd paragraph, lines 3-8) further comprising the step of generating a connection to one of the plurality of simulated ground stations (Priore: pg. 269, section The Problem; with Durst, pg. 392, figure 1).

Claim 11. A method as recited in claim 7(Gold: abstract; Priore: pg. 269,section The Problem, bullets 1-4, pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 397, right column, 2nd paragraph, lines 3-8) wherein the step of requesting comprises the step of requesting a connection to the multiple ground stations, wherein each ground station has the unique port address (Durst: pg. 397, right column, 2nd paragraph, lines 3-8).

Claim 12. A method recited in claim 8 (Gold: abstract; Priore: pg. 269,section The Problem, bullets 1-4, pg. 270-271, Problem Solution section, lines 1-8 and 1-7, respectively; Durst: pg. 397, right column, 2nd paragraph, lines 3-8) wherein the step of generating a simulated range server name comprises generating the range server name in response to the unique port address and wherein the step of generating a tracking server name comprises generating the tracking server name in response to the unique port address (Durst: pg. 397, right column, 2nd paragraph, lines 3-8).

7. Claims 13-15 are rejected under 35 U.S.C. 103(a) as being unpatentable by Gold et al. (U.S. Patent 5,808,921 (1998)) in view of Priore ("A General Purpose Data Processing System Simulator for Satellite Ground Stations (1997)). Gold et al. teaches

a system for testing an embedded control processor (i.e., emulated spacecraft control processor and simulation engine) for a spacecraft control processor (abstract); but doesn't expand the simulation to ground station activity. Priore teaches a method to model a general class of automatic data processing functions for satellite ground stations.

At the time the invention, it would have been obvious to one of ordinary skill in the art to use Priore to modify Gold et al. because of the significant financial expense of using actual equipment to model daily intergalactic activities.

Claim 13. A spacecraft emulation system comprising (Gold: abstract): a spacecraft status and control client (Priore: pg. 273, section DPSSGS MODEL OVERVIEW): an interface coupled to the spacecraft status (Priore: pg.269, section Introduction, bullets 1-4) and control client for generating identification information for a desired simulated ground station: a range data generator (Gold: column 3, lines 8-51; with Priore: pg. 269) for generating simulated range data from a plurality of simulated ground stations (Priore: pg.273, overview); and a range server coupled to the range data generator and spacecraft status and control client having the simulated range data for said plurality of simulated ground stations therein, said range serve providing the simulated range data to said spacecraft status and control client (Gold: column 3, lines 8-51; with Priore: pg. 269).

Claim 14. A spacecraft emulation system as recited in claim 13 (Gold: abstract, column 3, lines 8-51; with Priore: pg. 269; Priore: pg. 273, section DPSSGS MODEL OVERVIEW; Priore: pg.269, section Introduction, bullets 1-4) further comprising: a tracking server coupled elevation and attitude data generator and the spacecraft status and control client, the tracking server providing elevation and azimuth data to said spacecraft status and control client.

Claim 15. A spacecraft emulation system as recited in claim 13 (Gold: abstract, column 3, lines 8-51; with Priore: pg. 269; Priore: pg. 273, section DPSSGS MODEL OVERVIEW; Priore: pg.269, section Introduction, bullets 1-4) wherein said interface, range data generator, range server, tracking data generator and tracking server are coupled within a single unit.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mr. Tom Stevens whose telephone number is (571) 271-0365, Monday-Friday (8:00 am- 4:30 pm) or contact Supervisor Mr. Kevin Teska at (571) 272-3716. The fax number for the group is 703-308-1396.

Any inquires of general nature or relating to the status of this application should be directed to the Group receptionist whose phone number is (571) 272-1400

November 4, 2004

THS

KEVIN J. TESKA
SUPERVISORY
PATENT EXAMINER